Statement of Work for DATR RF/IF ATF-1 Switch Replacement

I. Scope of Work

a. Background

The NASA Dryden Aeronautical Test Range operates and maintains a variety of telemetry tracking systems that operate in the C-Band frequencies of 4550-4850MHz. An initiative to upgrade systems to operate in the frequency band of 4400-5250MHz is under way. The systems will down convert these frequencies to 300-1150MHz. In addition to this new band the traditional 1440-2400MHz band will be maintained.

b. Objectives

To accommodate the growth of the frequency band utilization the system frequency response must be modified within these tracking systems to allow 300-2400MHz pass band. This SOW addresses the need for an RF distribution switch that will directly replace the legacy switch located at the ATF-1 and ATF-2 antenna systems. The legacy switch system is comprised of many types of switch matrices that need to be maintained for system integration purposes such as maintainability, mechanical mounting, physical size and control compatibility with the whole system. Therefore the existing manufacture should supply the new RF matrix switch to meet the specifications listed in section II to be directly compatible and drop in place. To do this the manufacture must also replace a second matrix designed in the original switch, the IF switch that operates in the frequency band of 20-200MHz. and meet the specifications also listed in section II

II. Applicable Document

(RF)
Switch Configuration: 8 input, 40 output
System Type: Non-blocking (full fan-out)
Signal Path: AC coupled analog
Frequency Range: 300MHz to 2400MHz (min)
System gain: Unity (nominal)
Flatness (over frequency range): +3/-2dB
Crosstalk isolation: >60dB
Maximum signal level (no damage): +10dBm
VSWR (input): <2.0 : 1
Noise figure: <12dB (300MHz to 2400MHz)
-1dB compression point (input): 0dBm
Input impedance: 50 ohms
Output impedance: 50 ohms
Signal connectors: N-Type female
Signal connector location: Rear panel
(IF)

Switch Configuration: 32 input, 8 output
System Type: Non-blocking (full fan-out)
Signal Path: AC coupled analog
Frequency Range: 20MHz to 200MHz (min)
System gain: Unity (nominal)
Flatness (over frequency range): +/-2dB
Crosstalk isolation: >60dB
Maximum signal level (no damage): +13dBm
VSWR (input): <2.0 : 1
Noise figure: <12dB
-1dB compression point (input): +3dBm
Input impedance: 50 ohms
Output impedance: 50 ohms
Signal connectors: BNC female
Signal connector location: Rear panel
Power supply section: Hot-Swap redundant with monitoring
AC power requirements: 90-264VAC, 47-440Hz, <400 watts
Operating temperature: 0 to +50C
General: 8RU Height in a 19" rack mount with front panel touch screen
Remote: Ethernet (10/100baseT) and serial based on current command/control structure of existing Universal Switch Inc. system

I. Technical Point of Contacts

N/A

II. Specific Task Requirements

Construct, test and deliver a replacement RF matrix switch compatible with existing US Switch system matrices requirements.

III. Period of Performance

Fiscal 2015.

IV. Deliverables

In the best interest of the Government to reduce operational design labor cost the P/N established by Universal Switch vendor (original system matrices integrator) shall be used for this procurement. US Switch P/N 12783-C02 shall be procured. All Hardware and software (if applicable) and test data with the option for the customer to witness data.

V. Acceptance Criteria

In the best interest of the government and the end users a formal ATP shall be performed and documented by the manufacturer. Sample ATP test points shall be witnessed by the customer or designated official. All Test points must be within specification to meet acceptance.

VI. Contractor/Government Furnished Property/Government Furnished Equipment

N/A

VII. Special Considerations

This procurement will include a minimum of two years warranty of all parts and labor with the possibility of onsite work at the expense of the vendor. Some training may be necessary to familiarize the customer with the new product. Customer service after delivery will be required in the event a problem arises with the deliverable after receipt at final location.

VIII. Security Requirements

N/A